REMARKS

Reconsideration of the subject application in view of the above amendment is respectfully requested.

By the present amendment, the specification is amended to correct formal errors therein. The specification has also been amended to include a Brief Description of the Drawings, as required by the Examiner. No new matter has been added.

The drawings (Figs. 1-3) have been amended to include the legend --Prior Art--.

Claims 1 and 16 have been amended.

Claims 2-15 and 17 have been canceled.

Claims 18-34 have been added.

Based on the foregoing amendments and the following remarks, the application is deemed to be in condition for allowance, and action to that end is respectfully requested.

I. Objection to the Drawings

The Examiner has objected to the drawings (Figs. 1-3) for failing to include the legend –Prior Art--. The Applicant has amended the drawings to include such legend.

In view of the above, the Examiner is respectfully requested to approve the foregoing amendments to the drawings (replacement sheets, together with a letter to Official Drafts person, are enclosed) and to withdraw the objections to the drawings.

II. Objections to the Specifications

The Examiner has objected to the specification based on formal errors contained therein.

As noted above, the specification has been amended to correct such formal errors. Accordingly, Applicant respectfully requests approval of the amendments to the specification and withdrawal of the objections thereto.

III. Rejection of the Claims

IIIa. Rejection Under 35 U.S.C. §112

The Examiner has rejected claims 11 (new claim 30) and 12 (new claim 31) under 35 U.S.C. §112, second paragraph, for being indefinite. Claims 11

and 12 have been canceled and replaced by claims 30 and 31. Applicant has amended such claims to overcome the rejection thereto. Accordingly, Applicant respectfully requests approval of the amendments to such claims and withdrawal of the rejection thereto under 35 U.S.C. §112, second paragraph.

IIIb. Rejection Over the Prior Art

The Examiner has rejected Claims 1 and 5-17 under 35 U.S.C. §102(a) as being anticipated by Banchs et al ("Multicasting Multimedia Streams with Active Networks") and claims 1, 6, 9 and 15-17 under §102(a) as being anticipated by U.S. Patent 4,679,189 (Olson et al.).

Claims 1 and 16 have been amended to include the limitations of claim 2 that were indicated to be allowable by the Examiner. In view of such amendments, the rejections to claims 1 and 16 under §102(a) are now moot. Accordingly, Applicant respectfully requests allowance of such claims and withdrawal of the rejection to such claims. Claims 20 and 22-34 depend on claims 1 and 16, respectfully and are allowable for the reasons advanced with respect to claims 1 and 16. Accordingly, Applicant respectfully requests allowance of such claims and withdrawal of the rejection to such claims.

Independent claims 18 and 19 have been added to include limitations other than the limitations of claim 2 that distinguish the invention from Banchs and Olson.

The Examiner maintains that in the Banchs reference "the code cache is interpreted as a route table because it contains information related to the routing of packets." Applicant respectfully disagrees with the Examiner's reading of such reference. In particular, the Examiner's statement can not be based on the wording of paragraphs 2.1.2 and 2.1.3 of Banchs, since these paragraphs do not mention any of the features "route table", "input index field", "operation code", "selector" etc. of claims. Accordingly, the Examiner's statement is based solely on an interpretation of the wording of such paragraphs.

Unfortunately, in order for the Examiner to arrive at such an interpretation the Examiner makes some assumptions that are simply wrong and therefore the interpretation as a whole is wrong.

The reason for this mistaken interpretation is the ambiguity of the term "code". This term has two entirely different uses. One meaning of "code", as used in software engineering, is that of "program code". The other

meaning of "code", as used in an information theoretical context, is that of "encoded information".

Clearly, the "code cache" of Banchs et al is a software cache and refers to the caching of program code. This is evident from the following quote: "If the code required by a capsule is found in the code cache, it is executed" in Banchs et al, paragraph 2.1.3. Only program code can be executed, unlike any encoded routing information.

In contradistinction, the route table is a collection of routing information (only), according to the second use of "code". New claims 18 and 19 use the term "operation code" as the term is already used in the originally filed claims, thus avoiding any ambiguity.

The concept or the nature and content of a route table is well-known in the art. This is supported by extensive literature such as the following prior publications:

- Stallings, W. "Data and Computer Communications" 1991, pages 310-311 (copy enclosed)
- Keshav, S. "An engineering approach to computer networking" 1997, pages 287-288 (copy enclosed)
- Comer, D. E. et al. "Internet Working with TCP/IP" 1991, pages 81-83 (copy enclosed)

The fact that these definitions are still valid is documented by:

- ☐ Comer, D. E. "Computer Networks and Internets" 2001, page 203 (copy enclosed)
- ☐ Tanenbaum "Computer networks" 2003, page 357 (copy enclosed) or
- ☐ Peterson / Davie "Computer networks 2000, page 281 (copy enclosed).

All these references clearly show that the routing table, as well as the forwarding table, contains passive information only and no active program code or software. The only action associated with a route table is an implicit one, namely that packets are forwarded based on information in the route table.

The Examiner uses the term "code" in the context of router data, which is not usual at all. The term "data" is appropriate, as can be seen in the Perlman/Chiu patent (US 6,526,055), which was cited in the first Office Action. There, the term "router database" is used (Fig 2). Moreover, in the same figure, Perlman makes a clear distinction between "router database" (215) and "packet receiving/sending software" (215), both being part of the storage area (204). The "packet receiving/sending software" is the entity to which "code cache" can be related: it is separate and not necessarily indexed etc.

Perlman explicitly mentions that, in a software embodiment, instructions (for the prefix comparison software) can be transmitted over a computer network (column 6, lines 50-52). But there is no indication in

Perlman that instructions could be stored in the "router database". This again supports the fact that a route table is used solely by a routing/forwarding algorithm, which itself is conceptually and implementation wise an independent entity.

Thus, a route table in the context of the present application is clearly a passive collection of routing information without any instruction codes being involved. As mentioned above, this is in line with the general understanding of this terminology in the specific technical field.

On the other hand, it should be clear that the code cache according to Banchs does not constitute a routing table nor does it contain one. First, in Banchs all code cache related operations occur after the packet has already traversed the node's routing table: The ANTS as well as the MO system are so called user space programs, while the routing table belongs to the operating system's kernel space. Only after the packet routing being done by the kernel, is a packet handed over to the ANTS or MO application. Thus, code cache and route table in Banchs et al are technically and processing-wise separate, not merged.

If, as the Examiner insinuates, packets are kind-of routed through the code cache based on a packet's indexing datum, this still does not constitute

a routing table: the code cache of Banchs et al does not contain any of the elements necessary for a routing table, namely destination address and/or outgoing line information. Instead, the code cache is a table containing program code pieces, indexed by a hash value that is dependent on the packet's application instead of the packet's destination as for a route table. Such a code cache table is not able to serve as a routing table as understood by those skilled in the art or as defined in the relevant textbooks.

Thus, the step of moving program instructions into the route table is neither anticipated nor in any way suggested by Banchs.

Turning now to the Olson reference, which constitutes the realistic state of the art in the field to which the present invention belongs: Both, the method according to Olson and the method according to the present invention serve to forward data packets in the way any router does.

The key difference, however, is that according to the present invention an explicit forwarding (FWD) operation is introduced. The method disclosed in Olson is implicitly and solely capable of forwarding, i.e. routing, (cf. e.g. column 15, lines 28-40, especially the passage "The ALG field specifies the routing algorithm to b used..." and "The four routing algorithms are described subsequently in detail, ..."). There is no program code or

programmability involved in Olson. The phrase "routing control information" shows that this is not about programmability but parameterization of the fixed routing/forwarding procedure. Accordingly, Olson does not disclose the introducing of a forwarding operation into the route table.

The algorithms disclosed in Olson are specifically described as "path selection algorithms" which select among a plurality of paths. There is no wording towards selecting packet processing functions like modifying the packet's content by removing or adding new fields, duplicating packets or even discarding packets as provided according to the present invention. Route tables in Olson still serve the sole purpose of storing forwarding information, rather than storing instructions. Thus, Olson typically represents the prior art to which the present invention adds new and unexpected features.

According to another aspect of Olson a special header field that carries "alternate routing control information" is required. The ARF packet header is mandatorily needed (also for interoperability with existing X.25 installations) to activate the mechanism of Olson. No such requirement exists for the present invention. Thus, the Olson method is bound to the still implicit forwarding action of prior art and moreover is restricted to the case where the

originator explicitly requests and steers the selection of alternate paths using a special packet header field.

This concept is also made clear by the fact that "alternate routing control information" is defined as an obviously important element in all independent claims of the Olson patent.

The Federal Circuit has mandated that 35 U.S.C. § 102 requires no less than "complete anticipation...[a]nticipation requires the presence in a single prior art disclosure of all elements of a claimed invention arranged as in the claim." Connell v. Sears, Roebuck & Co., 220 U.S.P.Q. 193, 198 (Fed. Cir. 1983); See also, Electro Medical Systems, 32 U.S.P.Q. 2d at 1019; Verdegaal Bros., 2 U.S.P.Q. 2d at 1053.

In view of the above, since neither Banchs or Olson disclose all the features of claim 18 and 19, it is respectfully submitted that Banchs and Olson each do not anticipate the present invention, as defined by claims 18 and 19. It is respectfully submitted that claims 18 and 19 are patentable over the prior art. Accordingly, it is respectfully submitted that claims 18 and 19 and claims 20-34 that depend therefrom respectfully are patentably distinct over each such art and thus withdrawal of such rejection over such claims is respectfully requested.

CONCLUSION

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance, and allowance of the application is respectfully requested.

Should the Examiner require or consider it advisable that the specification, claims and/or drawings be further amended or corrected in formal respects, in order to place the case in condition for final allowance, then it is respectfully requested that such amendment or correction be carried out by Examiner's amendment and the case passed to issue. Alternatively, should the Examiner feel that a personal discussion might be helpful in advancing this case to allowance, the Examiner is invited to telephone the undersigned.

Respectfully Submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail and addressed to: Mail Stop Amendment, Commissioner for Patents, Alexandria, VA 22313-1450 on October 18, 2004.